

Effect of natural durian skin on mechanical and morphological properties of Kevlar composites in structural applications

ABSTRACT

Recently, the sustainable issue is critical to function which encourages researchers to look for naturally sourced, sustainable materials in any application besides lower costs and improved performance. The effect of durian skin fibre loading on the mechanical properties of Kevlar/durian skin/ phenolic hybrid composites was investigated. DSF is cellulose-based fibres extracted from durian skin. The fibre content in the composites in this study was 0 and 30 vol % of fibre loading. Increasing Durian skin fiber (DSF) content in the Kevlar Durian skin phenolic hybrid composites (KDSPHC) has reduced the tensile and flexural strength of the composites meanwhile the impact resistance increased up to about 40 % compared to 0 vol % DSF loading. A morphological study observed by Scanning Electron Microscope and optical microscope showed that the interaction between DSF and Kevlar fibre was decent which contributed to the variation in the composite properties.

Keyword: Durian skin fibre; Kevlar fibre; Hybrid composite; Mechanical properties